

**REACTIVE ION ETCHING FOR SEMICONDUCTOR DEVICE
FEATURE TOPOGRAPHY MODIFICATION**

ABSTRACT OF THE DISCLOSURE

A film is deposited on a substrate disposed in a substrate processing chamber. The substrate has a trench formed between adjacent raised surfaces. A first portion of the film is deposited over the substrate from a first gaseous mixture flowed into the process chamber by chemical-vapor deposition. Thereafter, the first portion is etched by flowing an etchant gas having a halogen precursor, a hydrogen precursor, and an oxygen precursor into the process chamber. Thereafter, a second portion of the film is deposited over the substrate from a second gaseous mixture flowed into the processing chamber by chemical-vapor deposition.

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